

Application No. 09/531,449  
Reply to Office Action of July 2, 2003

REMARKS

Applicants thank Examiner Ferguson for indicating that the subject matter of Claims 8, 11, 14, 16, 17, 20 and 22-25 is allowable if written in independent form to include all of the limitations of the base claim and any intervening claims. Applicants further thank the Examiner and Examiner Elizabeth Mulvaney for the helpful and courteous discussion of October 15, 2003. During the discussion, Applicants' U.S. representative presented arguments that the claimed optical information medium containing the pressure sensitive adhesive recited in present independent Claim 7 is not obvious in view of the optical information medium containing a UV-curable adhesive claimed in U.S. 6,511,729. The Examiner appeared to agree and indicated that the double patenting rejection would be withdrawn.

Claims 7, 9-10, 12-13, 15, 18-19 and 21 stand rejected under the judicially created doctrine of obviousness-type double patenting in view of Claims 1-4 and 6-7 of Hirata (U.S. 6,511,729). The Office asserted that although the claims are not identical, they are obvious over one another because experimental modification to optimize operating conditions is insufficient to render patentability. Applicants traverse the Office's rejection on the grounds that the Hirata patent does not claim the pressure sensitive adhesive recited in present Claim 7.

Independent Claim 7 of the present application, from which Claims 8-25 depend, recites limitations including "the light-transmitting layer comprises a light-transmitting sheet formed of a resin and an adhesive layer containing *pressure-sensitive adhesive* for bonding the light-transmitting sheet to an associated side of the supporting substrate". In contrast, independent Claims 1 and 7 of Hirata require that the adhesive layer comprise "*a cured product of a UV-curable resin*". Applicants submit that a UV-curable resin adhesive layer and a pressure sensitive adhesive layer are not obvious over one another.

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The pressure-sensitive adhesive layer of the present claims is described on page 6, lines 4-10 as:

"[F]or the constituent of the adhesive layer, pressure-sensitive adhesives, for instance, any of acrylic resins, silicon resins and rubber materials may be used."

Hirata describes the UV-curable resin as follows:

The UV-curable resins used herein include radical-polymerizable resins and cation-polymerizable resins.

Suitable oligomers used in radical polymerization are acrylates such as ester acrylates, urethane acrylates, epoxy acrylates, melamine acrylates and acrylic resin acrylates.

Exemplary of the cation-polymerizable resins are epoxy resins, vinyl ether compounds and cyclic ether compounds. . . . The epoxy resins include bisphenol, novolac, alicyclic and aliphatic resins. . . . (column 4, lines 22-33).

The use of an adhesive layer containing a pressure sensitive adhesive offers several important benefits in comparison to the use of a UV-curable resin adhesive layer. As is stated in the present specification on page 5, lines 19 through page 10, line 4:

The adhesive layer 202 is made up a pressure-sensitive adhesive that is transparent to recording and reproducing light and has an adhesion strong enough to bond the light-transmitting sheet to a layer present in the surface of the supporting substrate.

The use of the adhesive agent for the bonding of the light-transmitting sheet to the associated side of the supporting substrate has the following advantages:

(1) Curing is unnecessary unlike an ultraviolet-curing adhesive agent; the medium is less susceptible to warpage due to no distortion by shrinkage of resin upon curing.

(2) Curing is unnecessary with no distortion by shrinkage of the resin upon curing, resulting in little or no increase in the index of birefringence of the light-transmitting sheet.

(3) Any curing step is not needed, and so the equipment used can be simplified.

(4) The adhesive layer can be previously formed as a coating film on the light-transmitting sheet and so can have a reduced thickness profile. Thus, the problems arising so far from the combination of the light-transmitting sheet with the ultraviolet-curing adhesive agent can be eliminated by the present invention.

Therefore, in the specification as originally filed, the description of the pressure sensitive adhesive distinguishes it over UV-curable adhesives. Since the presently claimed

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invention contains an element not included in the invention claimed in Hirata, namely a pressure sensitive adhesive, the present invention cannot be obvious in view of the Hirata claims.

For the purposes of argument only, even if a UV-curable resin adhesive were to suggest a pressure sensitive adhesive, Applicants have provided Examples and Comparative Examples showing that the pressure sensitive adhesive of the present claims provides an optical information medium which exhibits significantly superior performance in comparison to an optical information medium containing a UV-curing adhesive.

Table 1 provided on page 13 of the specification is reproduced on the following page for convenience. The Table compares optical information media prepared with pressure sensitive adhesives and UV-curing adhesives.

Table 1

Sample No.	Bonding Means	Material for Light-Transmitting Sheet	Light-Transmitting Sheet Making Process	Thickness Profile ( $\mu\text{m}$ )	Amount of warpage (deg)	Double Refraction (nm)
1	Pressure-Sensitive Adhesive	polycarbonate	Casting	2	0.20	20
2	Pressure-Sensitive Adhesive	polycarbonate	Melt Extrusion	4	0.22	130
3 (comp.)	UV-Curing Adhesive	polycarbonate	Casting	14	0.72	40
4 (comp.)	UV-Curing Adhesive	polycarbonate	Melt Extrusion	18	0.75	200
5 (comp.)	UV-Curing Adhesive	—	—	25	Unmeasurable	10
6	Pressure-Sensitive Adhesive	Cyclic Polyolefin	Casting	3	0.24	15
7 (comp.)	UV-Curing Adhesive	Cyclic Polyolefin	Casting	17	0.65	25
8	Pressure-Sensitive Adhesive	Polyarylate	Casting	3	0.26	30
9 (comp.)	UV-Curing Adhesive	Polyarylate	Casting	20	0.68	40

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Sample Nos. 1 and 2 contain a pressure sensitive adhesive whereas Comparative Samples 3-5 contain a UV-curing adhesive. As is readily evident by the amount of warpage (boxed column), the pressure sensitive adhesive-containing optical information medium exhibits substantially less warpage in comparison to an optical information medium containing a UV-curable adhesive. The UV-curable adhesive resin used in the Comparative Samples in Table 1 is the same UV-curable adhesive resin used in Example 2 (Sample No. 9) of Hirata (column 10, lines 43-47).

Applicants have therefore shown that the claimed optical information medium can provide significantly improved performance with regard to the amount of warpage in comparison to the optical information medium of Hirata. Applicants submit that the showing of improved performance is sufficient to demonstrate that the claimed invention is not obvious over the invention claimed in Hirata. Applicants respectfully request the withdrawal of the rejection and the passage of all now-pending claims to issue.

Applicants filed a Request for Priority on March 20, 2000 together with the original specification. The present application claims priority to Japanese Application Nos. 11-076951; 11-148602; and 11-324101; filed on March 19, 1999; May 27, 1999; and November 16, 1999; respectively. Priority under U.S.C. § 119 has so far not been acknowledged in the Office Action. Applicants respectfully request the Examiner acknowledge priority under 35 U.S.C. § 119 in the next Communication from the Office.

On June 20 and October 16, 2000, Applicants submitted Information Disclosure Statements including a List of Related Cases. Applicants respectfully request the Examiner provide signed and initialed copies of the List of Related Cases with the next Communication from the Office, or provide a statement in the next Communication from the Office indicating

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that at least the claims and drawings of the cases provided in the Information Disclosure Statement have been considered.

Respectfully submitted,

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